

Sixth National Green Power Marketing Conference  
Portland, Oregon  
30 July 2001

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# The Outlook for Green Power Markets



**ED HOLT**  
**& Associates, Inc.**  
*Energy Smart Consulting*

28 Headland Road  
Harpwell, ME 04079  
Tel. 207.798.4588  
Fax 207.798.4589  
[edholt@igc.apc.org](mailto:edholt@igc.apc.org)

# Today's Weather

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Cloudy with a chance of storms in parts of the country, and sunny breaks elsewhere

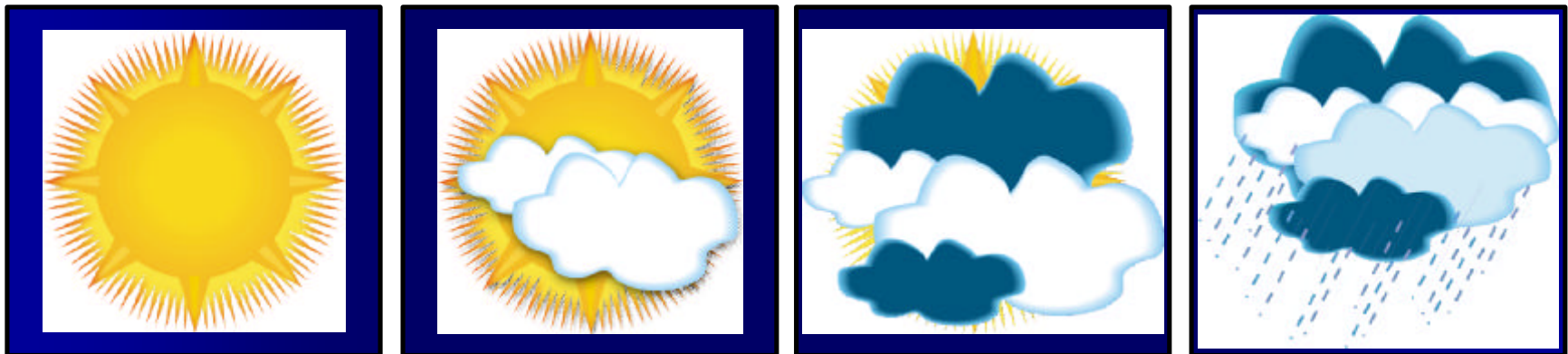
- ? **Regulated Markets**
  - ? 15-18% have access to green power
  - ? 0.8% median market penetration
  - ? 7.4% highest penetration

- ? **Restructured Markets**
  - ? ~100% have access to green power
  - ? best states have reached 1.6-1.9% market penetration
  - ? other states--little activity

# Weather Forecasts

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- ? Shorter term meteorological models aided by satellite pictures
- ? TV weather forecasters are backed by a technical team



# Forecast Team

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- ? Lawrence Berkeley National Laboratory
  - ? Ryan Wiser
  - ? Mark Bolinger
- ? Ed Holt & Associates, Inc.
  - ? Ed Holt
- ? National Renewable Energy Laboratory
  - ? Blair Swezey
- ? Supported by U.S. Department of Energy
- ? Unfortunately, no green power satellite

# Forecast Model

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- ? 10-year forecast of U.S. green power demand
- ? High growth scenario
  - ? restructuring proceeds with little delay
  - ? market rules conducive to competition, switching
  - ? consumer acceptance of green power is high
  - ? green power premium continues to decline
- ? Low growth scenario
  - ? introduction of customer choice is delayed
  - ? market rules deter competition, switching
  - ? consumer acceptance of green power grows slowly
  - ? premium cost remains at current levels
- ? Both scenarios are plausible

# Forecast Assumptions

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- ? State level forecast of residential loads 2020
- ? Pace of restructuring, by state
- ? Green power market access, by state
- ? Separate assumptions for regulated and restructured markets
- ? Residential green power market penetration
- ? Start with known conditions

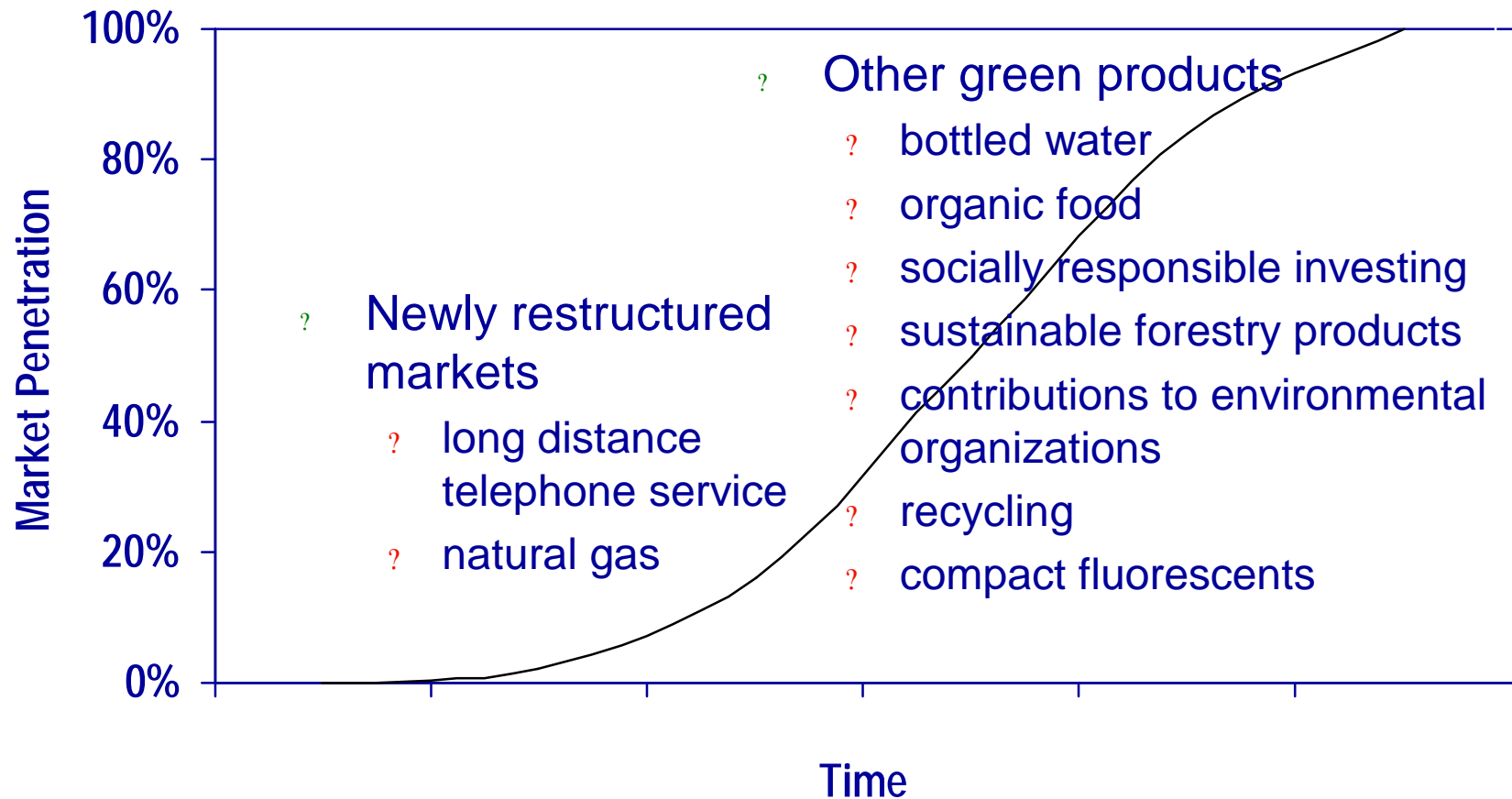
# Forecast Assumptions (cont.)

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- ? Green power product quality
  - ? how much total renewable
  - ? how much **new** renewable
- ? Non-residential demand as percent of residential demand
- ? Separate assumptions for high and low scenarios

# Case Studies

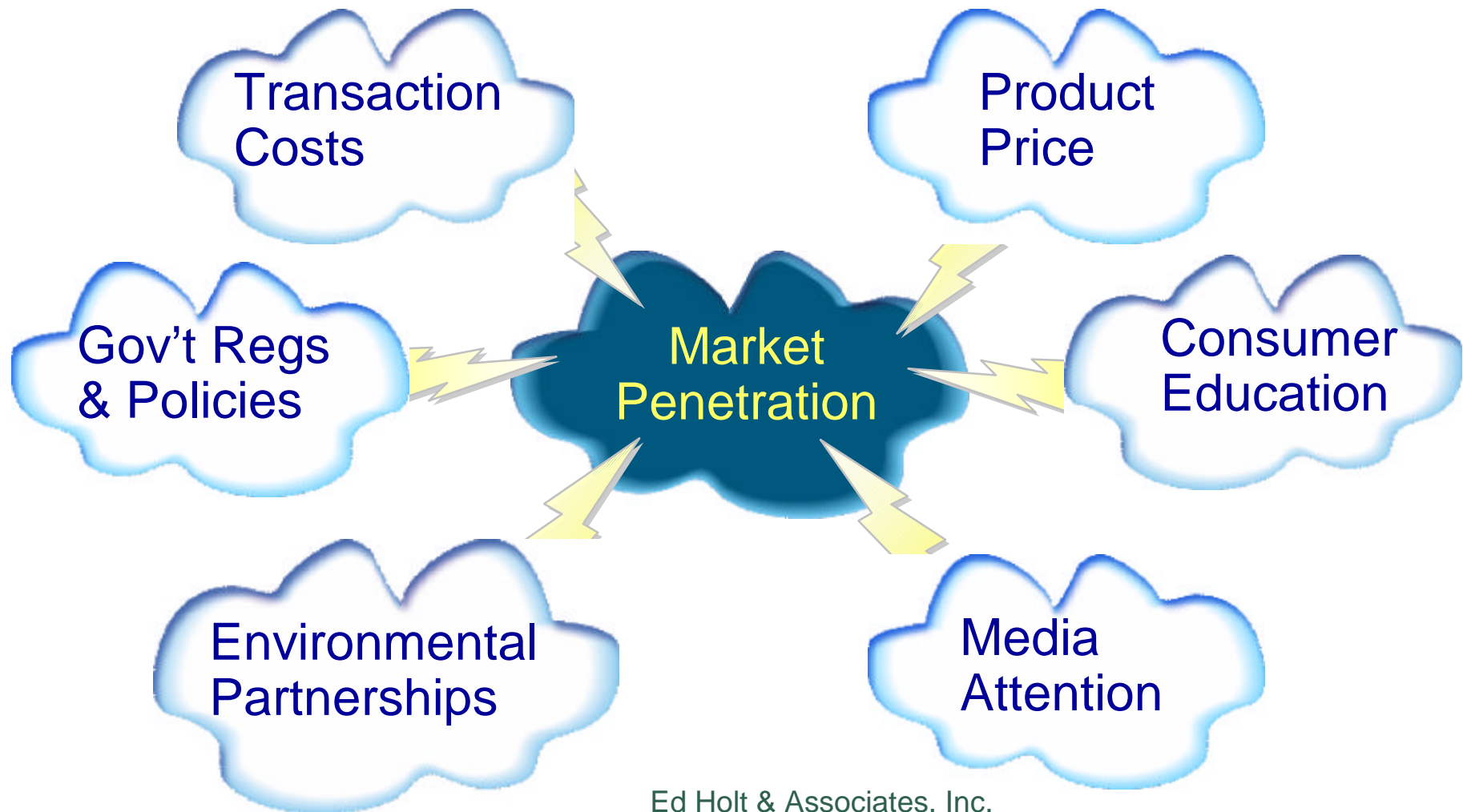
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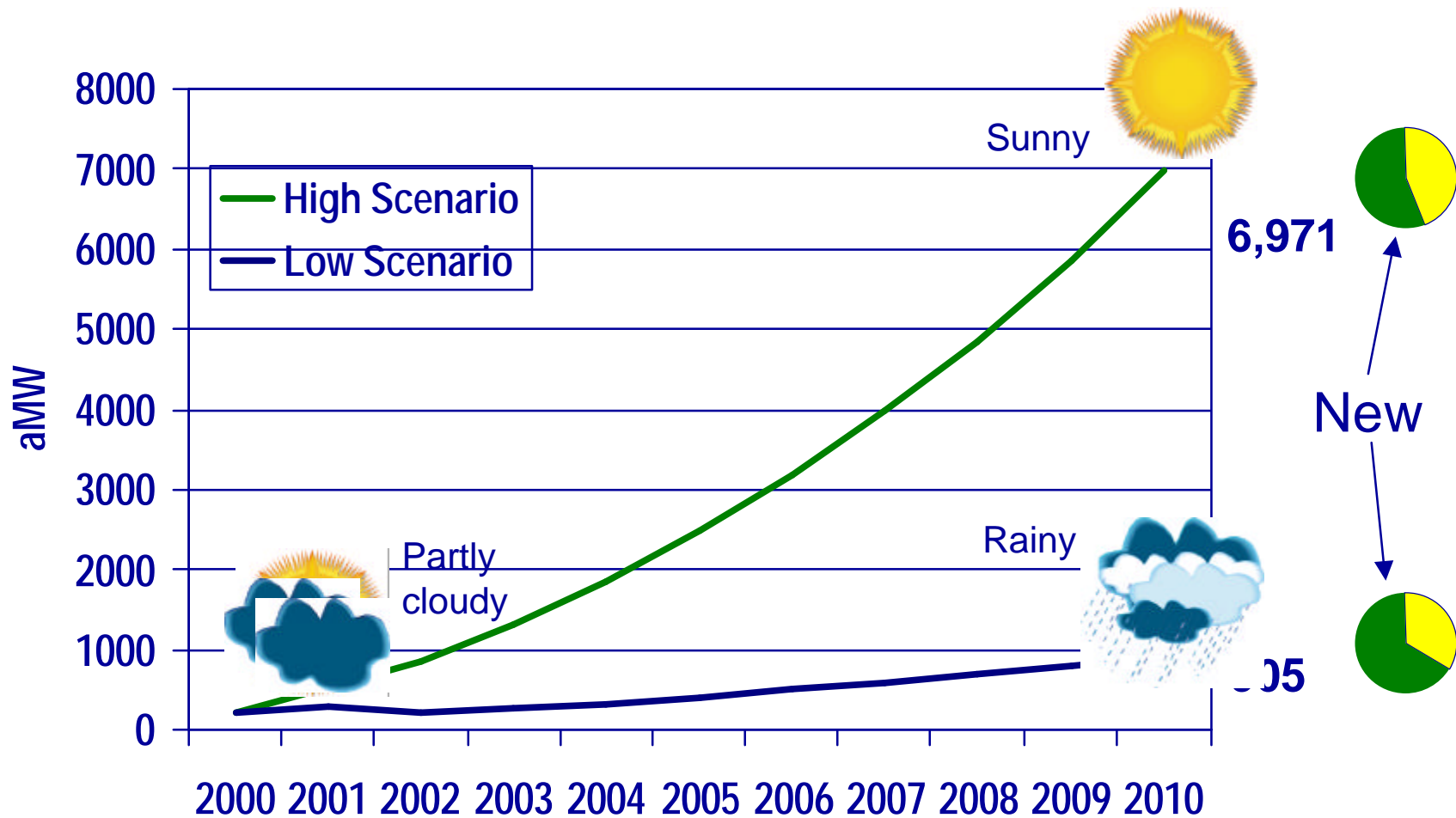


# Influencing Factors

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# The Forecast



# Uncertainties



- ? Access to green power
- ? Pace of restructuring - California effect
- ? Regulatory rules - default price
- ? Consumer education
  - ? disclosure and certification
- ? Renewable energy premiums
  - ? technology cost improvements
  - ? cost of natural gas
  - ? hedge against rising or volatile prices

# Uncertainties (cont.)



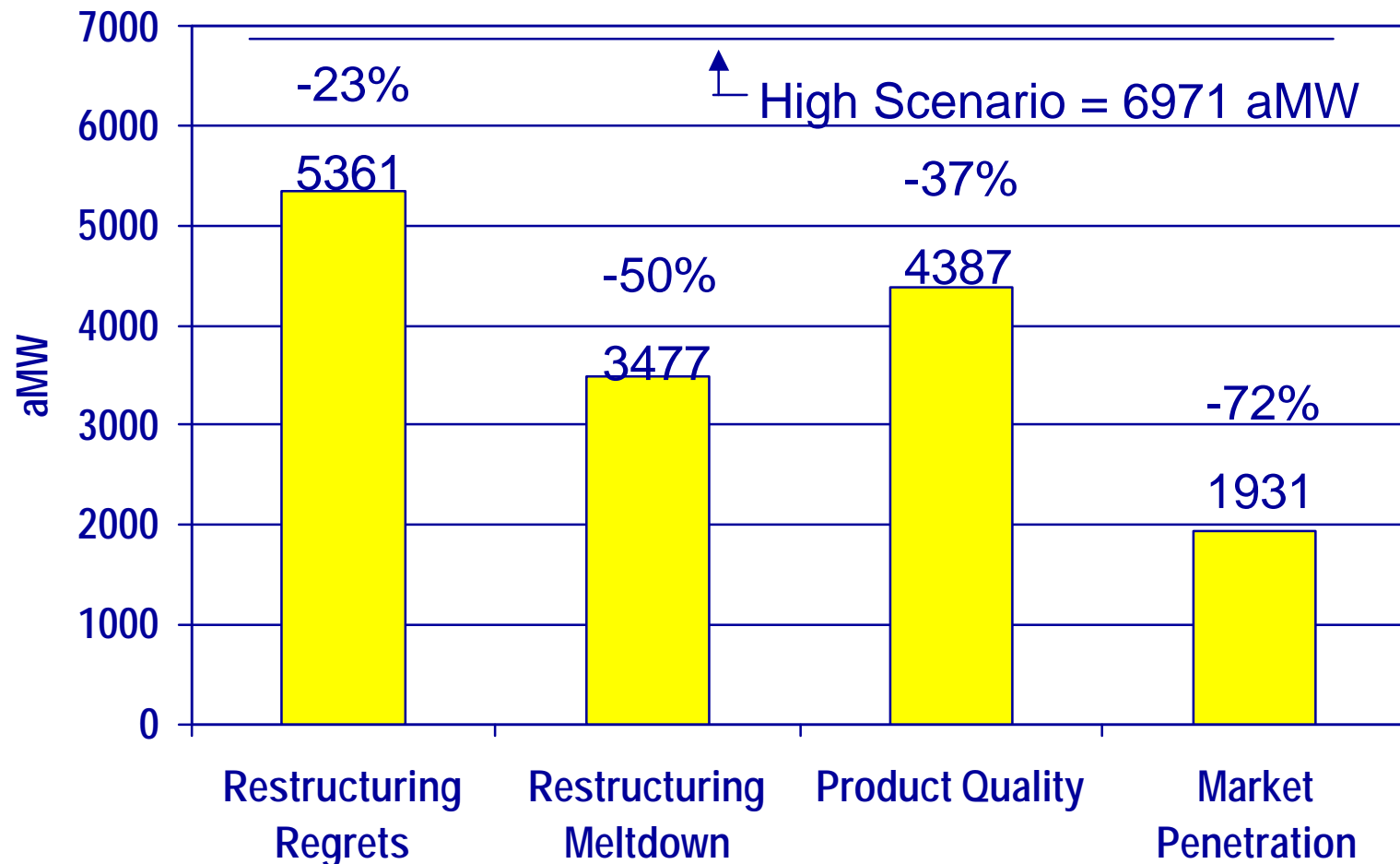
- ? Product innovation and marketing
  - ? customer aggregation
  - ? large customer purchases
  - ? tradable renewable credits
- ? Renewable energy policies
  - ? financial support, e.g. PTC, SBC
  - ? Renewables portfolio standard
    - ? will consumer demand be additional?

# Sensitivity Scenarios

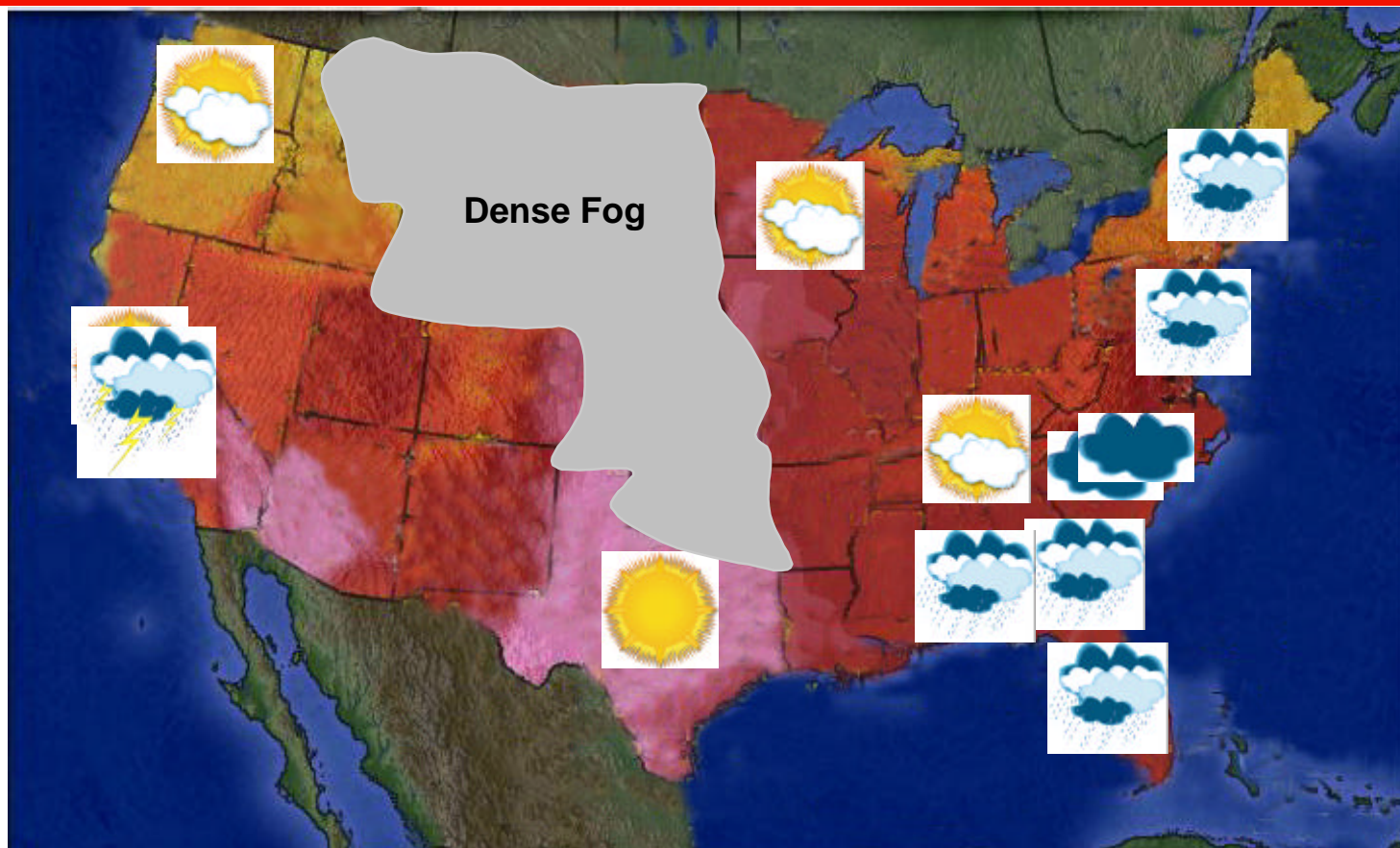
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- ? Market Penetration
  - ? low penetration assumptions in high scenario
- ? Product Quality
  - ? low total and new renewables in high scenario
- ? Restructuring Regrets
  - ? states not yet open don't; no retail access for public utilities
- ? Restructuring Meltdown
  - ? same as "Regrets," plus access to green power is cut in half (regulated *and* restructured markets)

# Forecast Drivers



# National Forecast



Not based on modeling results

Ed Holt & Associates, Inc.

# Today's Weather

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- ? Green power market remains small
- ? Utility green pricing continues to expand
- ? Open access states need competitive markets
- ? Consumer education needed
- ? Large customers are recognizing opportunity



# 10 Year Forecast



- ? Wide gap between scenario results
- ? Great uncertainty
- ? A lot depends on market penetration



- ? Subsidies to buy down the cost of renewables
- ? Renewables portfolio standards
- ? Default pricing that reflects retail costs
- ? Stable markets



- ? Expanded access to green power
- ? Aggressive promotion
- ? Lower costs
- ? Disclosure and certification
- ? Customer aggregation
- ? Patience and tenacity

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Thank You



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